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IBM Technical Disclosure Bulletins

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<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT	14 or 16	26	<u>L8</u>
USPT	15 or 16	10	<u>L7</u>
USPT	15 and insect\$	9	<u>L6</u>
USPT	photorhabdus	10	<u>L5</u>
USPT	12 and toxi\$	23	<u>L4</u>
USPT	11 and insect\$	38	<u>L3</u>
USPT	11 and insect\$	38	<u>L2</u>
USPT	xenorhabdus	63	<u>L1</u>

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=> file medline biotechno caplus embase scisearch biosis

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FILE 'BIOTECHNO' ENTERED AT 11:09:57 ON 15 MAR 2001

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FILE 'EMBASE' ENTERED AT 11:09:57 ON 15 MAR 2001

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FILE 'BIOSIS' ENTERED AT 11:09:57 ON 15 MAR 2001

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=> s xenorhabdus

L1 1128 XENORHABDUS

=> s l1 and insect?

L2 477 L1 AND INSECT?

=> s l2 and oral

L3 9 L2 AND ORAL

=> dup rem l3

PROCESSING COMPLETED FOR L3

L4 9 DUP REM L3 (0 DUPLICATES REMOVED)

=> d ti 1-9

L4 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2001 ACS

TI **Oral insecticides** from the parasitic nematode
symbiotic bacterium **Xenorhabdus bovienii**

L4 ANSWER 2 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS

TI **Insecticidal** protein toxins from **xenorhabdus**.

L4 ANSWER 3 OF 9 SCISEARCH COPYRIGHT 2001 ISI (R)

TI Secreted proteases from Photorhabdus luminescens: separation of the
extracellular proteases from the **insecticidal** Tc toxin complexes

L4 ANSWER 4 OF 9 SCISEARCH COPYRIGHT 2001 ISI (R)

TI Photorhabdus luminescens W-14 **insecticidal** activity consists of
at least two similar but distinct proteins - Purification and
characterization of toxin A and toxin B

L4 ANSWER 5 OF 9 SCISEARCH COPYRIGHT 2001 ISI (R)

TI Successful parasitization of locusts by entomopathogenic nematodes is
correlated with inhibition of **insect** phagocytes

L4 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2001 ACS

TI Pesticidal agents

L4 ANSWER 7 OF 9 SEARCH COPYRIGHT 2001 ISI (R)
 TI Insecticidal toxins from the bacterium *Photobacterium luminescens*

L4 ANSWER 8 OF 9 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
 TI Biologically active metabolites from *Xenorhabdus* spp., Part 1.
 Dithiolopyrrolone derivatives with antibiotic activity.

L4 ANSWER 9 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS
 TI EFFORTS TO INDUCE DEFENSE RESPONSES IN THE GREATER WAX MOTH LARVAE BY
 ORAL FEEDING OF INSECT PATHOGENIC BACTERIA.

=> d 1 2 8 9

L4 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2001 ACS
 AN 2000:367999 CAPLUS
 DN 133:13736
 TI Oral insecticides from the parasitic nematode
 symbiotic bacterium *Xenorhabdus bovienii*
 IN Jarrett, Paul; Morgan, James Alun Wynne; Ellis, Debbie
 PA Horticulture Research International, UK
 SO PCT Int. Appl., 43 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000030453	A2	20000602	WO 1999-GB3846	19991118
	WO 2000030453	A3	20001019		
	W:		AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
	RW:		GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
PRAI	GB 1998-25418		19981119		

L4 ANSWER 2 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS
 AN 2000:461120 BIOSIS
 DN PREV200000461120
 TI Insecticidal protein toxins from *xenorhabdus*.
 AU Ensign, Jerald C. (1); Bowen, David J.; Tenor, Jennifer L.; Ciche, Todd A.; Petell, James K.; Strickland, James A.; Orr, Gregory L.; Fatig, Raymond O.; Bintrim, Scott B.; Ffrench-Constant, Richard H.
 CS (1) Madison, WI USA
 ASSIGNEE: Dow AgroSciences LLC
 PI US 6048838 April 11, 2000
 SO Official Gazette of the United States Patent and Trademark Office
 Patents,
 (Apr. 11, 2000) Vol. 1233, No. 2, pp. No pagination. e-file.
 ISSN: 0098-1133.
 DT Patent
 LA English

L4 ANSWER 8 OF 9 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
 AN 92003845 EMBASE
 DN 1992003845
 TI Biologically active metabolites from *Xenorhabdus* spp., Part 1.
 Dithiolopyrrolone derivatives with antibiotic activity.

AU McInerney B.V.; Gregson R.P.; Lacey M.J.; Akhurst R.J.; Lyons G.R.;
Rhodes
S.H.; Smith D.R. ; Engelhardt L.M.; White A.H.
CS Biotech Australia Pty. Ltd., P.O. Box 20, Roseville, NSW 2069, Australia
SO Journal of Natural Products (Lloydia), (1991) 54/3 (774-784).
ISSN: 0163-3864 CODEN: JNPRDF
CY United States
DT Journal; Article
FS 004 Microbiology
052 Toxicology
037 Drug Literature Index
LA English
SL English

L4 ANSWER 9 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1987:126744 BIOSIS
DN BA83:65805
TI EFFORTS TO INDUCE DEFENSE RESPONSES IN THE GREATER WAX MOTH LARVAE BY
ORAL FEEDING OF INSECT PATHOGENIC BACTERIA.
AU GLINSKI Z; JAROSZ J
CS BEE DISEASES RESEARCH LABORATORY, AGRICULTURAL UNIVERSITY, LUBLIN,
AKADEMICKA 12, POLAND.
SO COMP BIOCHEM PHYSIOL A COMP PHYSIOL, (1986) 85 (4), 673-678.
CODEN: CBPAB5. ISSN: 0300-9629.
FS BA; OLD
LA English

=> d ab 1 2 8 9

L4 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2001 ACS
AB Disclosed are novel strains of **Xenorhabdus bovienii** deposited
with NCIMB under accession nos. NCIMB 40985 and NCIMB 40986 which are a
source of orally acting pesticides. Also disclosed are pesticidal agents
from *X. bovienii* strains; have **oral insecticidal**
activity against one or more species of **insect** of the order
Lepidoptera, Coleoptera or Homoptera; are substantially heat stable to
50.degree.C; and act synergistically with *Bacillus thuringiensis* cells as
an **oral insecticide**. The invention further makes
available nucleic acids encoding these and variant toxins, plus vectors,
host cells and plants transformed with the same. Also disclosed are
insecticidal polypeptides (and antibodies raised to them) and
compsns., plus methods of using all of these materials for the control of
pests, particularly **insects**.

L4 ANSWER 2 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS
AB Proteins from the genus **Xenorhabdus** are toxic to **insects**
upon **oral** exposure. These protein toxins can be applied to
insect larvae food and plants for **insect** control.

L4 ANSWER 8 OF 9 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
AB Five related antibiotic compounds, named xenorhabdins, were isolated from
cultures of **Xenorhabdus** spp., bacteria symbiotically associated
with **insect**- pathogenic nematodes. Their chemical structures
were elucidated by X-ray crystallography, nmr, and mass spectral analyses
to be N-acyl derivatives of either 6-amino-4,5-dihydro-5-oxo-1,2-
dithiolo[4,3-b] pyrrole (compounds 1-3) or
6-amino-4,5-dihydro-4-methyl-5-
oxo-1,2-dithiolo[4,3-b] pyrrole (compounds 4 and 5). They are previously
unreported members of the pyrrothine family of antibiotics. Antimicrobial
and **insecticidal** activities were found. These metabolites are
specific to phase one **Xenorhabdus**.

L4 ANSWER 9 OF 9 BIOSIS COPYRIGHT 2001 BIOSIS

AB 1. Attempts were made to stimulate or induce the internal defence system in the greater moth larvae by oral feeding of the insect non-sporulating bacterial parasites *Pseudomonas aeruginosa*, *Serratia marcescens* or *Xenorhabdus nematophilus*. 2. After ingesting pathogens, an acquired immunity against an intrahaemocoelic challenge close of viable *P. aeruginosa* cells was not found in the three insect model systems: monoxenic, axenic and germ-free larvae, although in some treatments a negligibly elevated level of blood lysozyme activity appeared. 3. Animals given an injection of foreign soluble or particulate molecules directly into the larval haemocoel, including saline W, a physiological salt solution for lepidopterous larvae, showed an apparently increased concentration of blood lysozyme and withstood challenge with a lethal dose of *P. aeruginosa*. 4. These results are discussed in terms of the consideration that chitinase activity may affect the insect gut barriers enabling the contact of bacterial invaders with epithelial gut cells, and therefore it may help to demonstrate the inducible immunity by the oral route in a more convenient model system.

=> logoff

ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF
LOGOFF? (Y)/N/HOLD:n

=> d his

(FILE 'HOME' ENTERED AT 11:09:30 ON 15 MAR 2001)

FILE 'MEDLINE, BIOTECHNO, CAPLUS, EMBASE, SCISEARCH, BIOSIS' ENTERED AT 11:09:57 ON 15 MAR 2001

L1 1128 S XENORHABDUS
L2 477 S L1 AND INSECT?
L3 9 S L2 AND ORAL
L4 9 DUP REM L3 (0 DUPLICATES REMOVED)

=> s l1 and toxin

L5 34 L1 AND TOXIN

=> dup rem l5

PROCESSING COMPLETED FOR L5
L6 23 DUP REM L5 (11 DUPLICATES REMOVED)

=> l6 not l4

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=> s l6 not l4

L7 17 L6 NOT L4

=> d ti 1-17

L7 ANSWER 1 OF 17 MEDLINE

TI Novel insecticidal toxins from nematode-symbiotic bacteria.

L7 ANSWER 2 OF 17 MEDLINE
 TI Photorhabdus toxins: novel biological insecticides.

L7 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Insect viral vectors for gene transfer based on Nodavirus RNA

L7 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Insecticidal **toxin** from **Xenorhabdus** nematophilus, symbiotic bacterium associated with entomopathogenic nematode *Steinernema glaseri*

L7 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Insecticidal toxins and genes of **Xenorhabdus** and *Photorhabdus* and methods for insect control and production of insect-resistant plants

L7 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Effect of **toxin** protein from **Xenorhabdus** *luminescens* (Xlpt) on esterase of hemolymph of larvae of *Pieris rapae* L.

L7 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Insecticidal toxins from **Xenorhabdus** *nematophilus* and *Photorhabdus* *luminescens* and the genes encoding them and their use in pest control

L7 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Insecticidal protein toxins from **Xenorhabdus**

L7 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Insecticidal protein toxins from *Photorhabdus* *luminescens*

L7 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI An insecticidal protein **toxin** complex from *Photorhabdus* and cloning and expression of cDNAs encoding the components

L7 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Insecticidal **toxin** and gene from **Xenorhabdus** *nematophilus*

L7 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2001 ACS
 TI Involvement of larvicidal toxins in pathogenesis of insect parasitism with the rhabditoid nematodes, *Steinernema feltiae* and *Heterorhabditis bacteriophora*

L7 ANSWER 13 OF 17 SCISEARCH COPYRIGHT 2001 ISI (R)
 TI Trans-specific nematocidal activity of *Photorhabdus* *luminescens*

L7 ANSWER 14 OF 17 SCISEARCH COPYRIGHT 2001 ISI (R)
 TI Purification and characterization of a high-molecular-weight insecticidal protein complex produced by the entomopathogenic bacterium *Photorhabdus* *luminescens*

L7 ANSWER 15 OF 17 BIOSIS COPYRIGHT 2001 BIOSIS
 TI **Toxin** gene from **Xenorhabdus** *nematophilus*.

L7 ANSWER 16 OF 17 BIOSIS COPYRIGHT 2001 BIOSIS
 TI Effect of cucurbitacin D on in vitro growth of **Xenorhabdus** and *Photorhabdus* spp., symbiotic bacteria of entomopathogenic nematodes.

L7 ANSWER 17 OF 17 BIOSIS COPYRIGHT 2001 BIOSIS
 TI COMPARATIVE STUDIES ON PARASITISM CAUSED BY ENTOMOGENOUS NEMATODES *STEINERNEMA-FELTIAE* AND *HETERORHABDITIS-BACTERIOPHORA* I. THE ROLES OF THE

NEMATODE-BACTERIAL COMPLEX AND OF THE ASSOCIATED BACTERIA ALONE IN
PATHOGENESIS.

=> d 1-8 10 11

L7 ANSWER 1 OF 17 MEDLINE
AN 2000350267 MEDLINE
DN 20350267
TI Novel insecticidal toxins from nematode-symbiotic bacteria.
AU ffrench-Constant R H; Bowen D J
CS Department of Biology and Biochemistry, University of Bath, United
Kingdom.. bssrfc@bath.ac.uk
SO CELLULAR AND MOLECULAR LIFE SCIENCES, (2000 May) 57 (5) 828-33. Ref: 23
Journal code: CLE. ISSN: 1420-682X.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals; Cancer Journals
EM 200009
EW 20000905

L7 ANSWER 2 OF 17 MEDLINE
AN 1999316464 MEDLINE
DN 99316464
TI Photorhabdus toxins: novel biological insecticides.
AU ffrench-Constant R; Bowen D
CS Department of Biology and Biochemistry, University of Bath, Bath, BA2
7AY,
UK.. ffrench@vms2.macc.wisc.edu
SO Curr Opin Microbiol, (1999 Jun) 2 (3) 284-8. Ref: 28
Journal code: DAY. ISSN: 1369-5274.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199909
EW 19990904

L7 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2001 ACS
AN 2000:707310 CAPLUS
DN 133:277172
TI Insect viral vectors for gene transfer based on Nodavirus RNA
IN Dasgupta, Ranjit K.; Goodman, Robert
PA Wisconsin Alumni Research Foundation, USA
SO PCT Int. Appl., 99 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000058487	A2	20001005	WO 2000-US8235	20000329
	WO 2000058487	A3	20010208		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
DK, ES, FR, GB, GR, IE, IT, LU, MC, PT, SE, BF, BJ, CF,
CG, CI, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI US 1999-281851 19990331

L7 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2001 ACS
AN 2000:419741 CAPLUS
DN 133:146147
TI Insecticidal toxin from *Xenorhabdus nematophilus*,
symbiotic bacterium associated with entomopathogenic nematode *Steinernema glaseri*
AU Ryu, Keun Garp; Bae, Jun Sang; Yu, Yeon Su; Park, Sun Ho
CS Department of Chemical Engineering, University of Ulsan, Ulsan, 680-749,
S. Korea
SO Biotechnol. Bioprocess Eng. (2000), 5(2), 141-145
CODEN: BBEIAU; ISSN: 1226-8372
PB Korean Society for Biotechnology and Bioengineering
DT Journal
LA English
RE.CNT 14
RE
(3) Bowen, D; Science 1998, V280, P2129 CAPLUS
(6) Park, S; Biotechnol Bioprocess Eng 1999, V4, P12 CAPLUS
(10) Schmidt, T; Appl Env Microbiol 1988, V54, P2793 CAPLUS
(11) Smigielski, A; US 5972687 1999 CAPLUS
(12) Smigielski, A; Appl Environ Microbiol 1994, V60, P120 CAPLUS
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2001 ACS
AN 1999:691217 CAPLUS
DN 131:318603
TI Insecticidal toxins and genes of *Xenorhabdus* and *Photorhabdus*
and methods for insect control and production of insect-resistant plants
IN Kramer, Vance Cary; Morgan, Michael Kent; Anderson, Arne Robert
PA Novartis AG, Switz.; Novartis-Erfindungen Verwaltungsgesellschaft mbH
SO PCT Int. Appl., 96 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9954472	A1	19991028	WO 1999-EP2629	19990419
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, VZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6174860	B1	20010116	US 1999-293395	19990416
AU 9936073	A1	19991108	AU 1999-36073	19990419
EP 1082434	A1	20010314	EP 1999-917999	19990419
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRAI US 1998-63982 19980421
US 1999-123500 19990309
US 1998-145748 19980421
US 1999-125525 19990322
WO 1999-EP2629 19990419

RE.CNT 9
RE
(1) Bowen, D; SCIENCE 1998, V280, P2129 CAPLUS

(2) Commw Scient Ind Res Org; WO 9500647 A 1995 CAPLUS
 (7) Mycogen Corp; WO 903154 A 1993 CAPLUS
 (8) Stemmer, W; NATURE 1994, V370, P389 CAPLUS
 (9) Univ California; WO 9638547 A 1996 CAPLUS
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2001 ACS
 AN 1999:649728 CAPLUS
 DN 132:217647
 TI Effect of **toxin** protein from **Xenorhabdus luminescens**
 (Xlpt) on esterase of hemolymph of larvae of *Pieris rapae* L.
 AU Wang, Xiaorong
 CS Zhongkai Agricultural College, Canton, 510225, Peop. Rep. China
 SO Huazhong Nongye Daxue Xuebao (1999), 18(4), 321-323
 CODEN: HNDXEK; ISSN: 1000-2421
 PB Huazhong Nongye Daxue
 DT Journal
 LA Chinese

L7 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2001 ACS
 AN 1999:77446 CAPLUS
 DN 130:149870
 TI Insecticidal toxins from **Xenorhabdus nematophilus** and
Photorhabdus luminescens and the genes encoding them and their use in
 pest
 control
 IN East, Peter David
 PA Commonwealth Scientific and Industrial Research Organisation, Australia
 SO PCT Int. Appl., 48 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9903328	A1	19990128	WO 1998-AU562	19980717
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9883250	A1	19990210	AU 1998-83250	19980717
	EP 1018863	A1	20000719	EP 1998-933364	19980717
	R: AT, DE, ES, FR, GB, IT, RO				
PRAI	AU 1997-8088		19970717		
	WO 1998-AU562		19980717		

RE.CNT 1
 RE

(1) Commonwealth Scientific And Industrial Research Organisation; WO 9500647
 1995 CAPLUS

L7 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2001 ACS
 AN 1998:745093 CAPLUS
 DN 130:1336
 TI Insecticidal protein toxins from **Xenorhabdus**
 IN Ensign, Jerald C.; Bowen, David J.; Tenor, Jennifer L.; Ciche, Todd A.;
 Petell, James K.; Strickland, James A.; Orr, Gregory L.; Fatig, Raymond
 O.; Bintrim, Scott B.; Ffrench-constant, Richard T.
 PA Dow Agrosiences LLC, USA; Wisconsin Alumni Research Foundation
 SO PCT Int. Appl., 47 pp.
 CODEN: PIXXD2
 DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9850427	A1	19981112	WO 1998-US8993	19980504
	W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
	AU 9871758	A1	19981127	AU 1998-71758	19980504
	EP 915909	A1	19990519	EP 1998-918938	19980504
	R:	CH, DE, DK, ES, FR, GB, IT, LI, NL			
	US 6048838	A	20000411	US 1998-72264	19980504
	BR 9900622	A	20000502	BR 1999-622	19990128
PRAI	US 1997-45641		19970505		
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L7 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2001 ACS

AN 1997:448052 CAPLUS

DN 127:62053

TI An insecticidal protein **toxin** complex from Photorhabdus and cloning and expression of cDNAs encoding the components

IN Ensign, Jerald C.; Bowen, David J.; Petell, James; Fatig, Raymond; Schoonover, Sue; Ffrench-Constant, Richard H.; Rocheleau, Thomas A.; Blackburn, Michael B.; Hey, Timothy D.; Merlo, Donald J.; Orr, Gregory

L.:

Roberts, Jean L.; Strickland, James A.; et al.

PA USA

SO PCT Int. Appl., 275 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9717432	A1	19970515	WO 1996-US18003	19961106
	W:	AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
	CA 2209659	AA	19970515	CA 1996-2209659	19961106
	AU 9710509	A1	19970529	AU 1997-10509	19961106
	AU 729228	B2	20010125		
	EP 797659	A1	19971001	EP 1996-941335	19961106
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI			
	BR 9606889	A	19971028	BR 1996-6889	19961106
	WO 9808932	A1	19980305	WO 1997-US7657	19970505
	W:	AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE,			

ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KR, KZ, LK, LR, LS, LT,
 LU, LV, MG, MK, MN, MW, MX, NO, NZ, PT, RO, RU, SD, SE,
 SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN
 RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,

SE

AU 9728299 A1 19980319 AU 1997-28299 19970505
 EP 970185 A1 20000112 EP 1997-922696 19970505
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, FI

BR 9711441 A 20001024 BR 1997-11441 19970505
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 PRAI US 1995-7255 19951106
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 WO 1997-US7657 19970505

L7 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2001 ACS
 AN 1995:489957 CAPLUS
 DN 122:232667
 TI Insecticidal **toxin** and gene from **Xenorhabdus**
 nematophilus
 IN Smigielski, Adam Joseph; Akhurst, Raymond Joseph
 PA Commonwealth Scientific and Industrial Research Organization, Australia
 SO PCT Int. Appl., 17 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9500647	A1	19950105	WO 1994-AU348	19940624
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9469916	A1	19950117	AU 1994-69916	19940624
	AU 675335	B2	19970130		
	EP 705340	A1	19960410	EP 1994-918696	19940624
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT,				
SE	JP 09500264	T2	19970114	JP 1994-502250	19940624
	US 5972687	A	19991026	US 1996-569168	19960405
PRAI	AU 1993-9638		19930625		
	WO 1994-AU348		19940624		

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L7 ANSWER 1 OF 17 MEDLINE
 AB The current strategy of using transgenic crops expressing insecticidal protein toxins is placing increasing emphasis on the discovery of novel toxins, beyond those already derived from the bacterium *Bacillus thuringiensis*. Here we review the cloning of four insecticidal **toxin** complex (tc) encoding genes from a different bacterium *Photobacterium luminescens* and of similar gene sequences from **Xenorhabdus** *nematophilus*. Both these bacteria occupy the gut of entomopathogenic nematodes and are released into the insect upon invasion by the nematode. In the insect the bacteria presumably secrete these insecticidal toxins, as well as a range of other antimicrobials, to establish the insect cadaver as a monocultural breeding ground for both

bacteria and nematodes. In this review, the protein biochemistry and structure of the *toxin* encoding loci are discussed in relation to their observed toxicity and histopathology. These toxins may prove useful as alternatives to those derived from *B. thuringiensis* for deployment in insect-resistant transgenic plants.

L7 ANSWER 2 OF 17 MEDLINE

AB Following concerns over the potential for insect resistance to insecticidal *Bacillus thuringiensis* toxins expressed in transgenic plants,

there has been recent interest in novel biological insecticides. Over the past year there has been considerable progress in the cloning of several alternative *toxin* genes from the bacteria *Photobacterium luminescens* and *Xenorhabdus nematophilus*. These genes encode large insecticidal *toxin* complexes with little homology to other known toxins.

L7 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB The invention provides insect viral vectors useful to transfer genes to plants, insects, and other hosts. To overcome the problems associated with the existing plant virus-based vectors and develop a highly efficient viral vector system for gene expression in plants, a Nodavirus-based vector was prepared. Preferably, the vector is derived from a virus having

a

bipartite genome which comprises single-stranded linear RNA, e.g., a Nodavirus such as Flock House virus (FHV). Linked nucleic acid sequences include a nucleic acid sequence derived from the 5' end of FHV RNA-1 or RNA-2 and a nucleic acid sequence derived from the 3' end of FHV RNA-1 or RNA-2. The nucleic acid segment of interest preferably encodes a plant virus movement protein, a plant virus coat protein, a growth hormone, a *toxin* (such as *Photobacterium toxin*), a cytokine, disease resistance, pest resistance, male sterility, or antigenic sites on the surface of the a virus useful for vaccine production or pesticide resistance.

L7 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB Entomopathogenic nematodes are being used for insect control. A *toxin* secreted by the insect-pathogenic bacterium, *Xenorhabdus nematophilus*, which lives in the gut of entomopathogenic nematodes, was purified. Culture broth of *X. nematophilus* was separated by centrifugation and concentrated by ultrafiltration. The concentrated culture broth was applied to a DEAE Sephadex A-50 column, and proteins were eluted stepwise with increasing concentrations of KCl. Fractions with insect toxicity were further concentrated and then applied to a HPLC with

a

gel filtration column. The molecular weight of purified *toxin* was 39 kDa on SDS-PAGE, and Fourier transformed IR (FTIR) spectroscopy indicated that this *toxin* could be a new protein exhibiting the characteristics of C=O stretching peak near 1650 cm⁻¹.

L7 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB Nucleic acid sequences from *Xenorhabdus nematophilus*, *X. poinarii*, and *Photobacterium luminescens*, which encode insecticidal toxins are disclosed herein. The invention also discloses compositions and formulations containing the insecticidal toxins that are capable of controlling insect pests, especially *Plutella xylostella*. The invention is further drawn to methods of making the toxins and to methods of using the nucleotide sequences, for example in microorganisms to control insect pests or in transgenic plants to confer insect resistance. Thus, nucleic acid containing two ORFs was cloned from *X. nematophilus*. The ORFs were arranged in an operon-like structure. ORF1 encoded a 15-kDa protein of unknown activity. ORF2 encoded a 47.7-kDa protein with 30.6% sequence identity to a juvenile hormone esterase-related protein. Recombinant *E. coli* expressing ORF2 were stored at 4.degree. or 22.degree. for 2 wk, or freeze-dried and stored for 2 wk. There was no loss of insecticidal activity. Although heating of the *E. coli* samples at 60.degree. resulted

in no loss of activity, heating at 100.degree. resulted in total loss of activity.

L7 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB The effect of **toxin** protein from **Xenorhabdus luminescens** on esterase of hemolymph of larvae of *Pieris rapae* L. which were fed on Xlpt was studied by PAGE. In contrast to larvae without being fed on Xlpt, the zymogram changed, and the ABS of zymogram of the larvae without being fed on Xlpt were 2-10 times as much as those of zymogram the larvae fed on Xlpt.

L7 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB Insecticidal proteins are identified in bacteria from the genera **Xenorhabdus** and **Photorhabdus** and the genes encoding them are cloned. The genes may be incorporated into suitable vectors, such as insect-specific viruses (including entomopox and nuclear polyhedrosis viruses), bacteria (including *Gracilicutes*, *Firmicutes*, *Tenericutes* and *Mendosicutes*), protozoa, yeast and plants for control of insect pests. The gene for the **toxin** protein of *X. nematophilus* was cloned from a Sau3A partial digest bank by activity, using toxicity to *Galleria mellonella* as a functional assay. One of the clones was used to screen a *P. luminescens* library to obtain the homologous gene. The genes were not found in all strains of *P. luminescens* and only in a limited no. of species of **Xenorhabdus**.

L7 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB Insecticidal proteins are identified in culture supernatants of **Xenorhabdus** strains. A broad array of **Xenorhabdus** strains were characterized by a no. of taxonomic criteria and tested for their insecticidal properties. Culture supernatants were tested for insecticidal activity and supernatants from a no. of strains either inhibited growth or killed larvae of a no. of Coleopteran pests. The **toxin** of *X. riobravus* was purified and was shown to be very active against a no. of major pests (corn earworms and rootworms, European cornborer, tobacco hornworm and budworm). Chromatog. purifn. of the **toxin** from culture medium is described. It was purified as a very large complex of .apprxeq.1000 kDa in its native form. The toxins of several **Xenorhabdus** isolates were similarly purified and found to contain up to 18 subunits with sizes of 26-330 kilodaltons.

L7 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB A complex of proteins from the genus **Photorhabdus** are toxic to insects upon exposure. **Photorhabdus luminescens** have been found in mammalian clin. samples and as a bacterial symbiont of entomopathogenic nematodes of genus *Heterorhabditis*. The toxins can be applied to, or genetically engineered into, insect larvae food and plants for insect control. The complex was effective against a broad range of insect larvae when applied to soil or to leaves. Bioassays against *Manduca sexta* larvae were used to monitor purifn. of the complex and individual components were then further characterized. The complex has 10 major subunits of 23-200 kDa with some of the subunits showing microheterogeneity. Genes for the subunits were cloned by screening cosmids with N-terminal sequence-derived probes.

L7 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2001 ACS

AB Purified insecticidal toxins and biol. active fragments thereof, and polynucleotide mols. encoding same, from the bacterium **Xenorhabdus nematophilus** are described. An *X. nematophilus* A24 genomic DNA clone with activity against *Galleria mellonella* larvae was sequenced. The gene was expressed in *Escherichia coli* to produce a 30 kDa protein which was stable

at 45.degree. and in the presence of 0.1% SDS. The gene was used as a hybridization probe in Southern blot anal. of DNA from **Xenorhabdus** and **Photobabdus**. Under moderate stringency wash conditions the **toxin** probe only hybridized to DNA from *X. nematophilus* and *X. beddingii* strains.